Important Items, Commonly Misunderstood

DRAWING FOUNDATION - Honey bees can not be taught, but are genetically programmed by nature. Hence, they do not "plan ahead" like we might buy a heavy winter coat in June because it is on sale and cheaper. Honey bees only construct comb if comb is needed, and comb is only used for two purposes: brood cells (baby bee cribs) and food storage, i. e., nectar, honey, and pollen.

Established colonies normally have plenty of empty brood cells available for egg laying by the queen; and there is no need for comb construction in the supers until a nectar flow starts which signals the young worker bee's wax glands to produce wax for comb construction. If the nectar flow becomes intense, more bees shift their chores to comb construction and work longer hours ("work like a bee"). Conversely, if the nectar supply is suddenly cut off (rain or cold weather), the bees stop building comb BECAUSE THE NEED IS GONE!

Starting a colony with a swarm, package, or split where most of the frames are foundation is a bit different, but primarily the same in that there is a need for comb construction, to build brood cells plus food storage. Bees interpret 1:1 sugar syrup as nectar (artificial of course), so a smart beekeeper feeds his new startup colony 1:1 sugar syrup and feeds it continuously from start in perhaps May all the way to about October in order to get 30,40, or 50 frames of foundation drawn into comb and filled with winter stores, hence making a STRONG colony next year.

No matter how many college degrees you have or recognized by all as smart, you cannot make honey bees draw foundation without their need to do it! Basically, bees will NOT draw foundation unless there is a nectar flow present!

Remember my saying: Drawn comb is a beekeeper's most valuable possession!

IS HONEY A BEE'S FIRST FOOD CHOICE? - The answer is NO! In fact, honey is third in line behind natural nectar and 1:1 sugar syrup! Honey stored and hoarded by bees as a winter survival food is very much like HARDTACK which is used by sailors when all other food is gone. The larvae of bees are NOT fed honey, but are fed nectar or honey diluted with water. Although eating honey during their confinement in the winter, bees normal food is nectar, thin sugar syrup or diluted honey. One more reason for your bees visiting your neighbor's swimming pool if you don't have a constant source of water close to your colonies.

ARE YOUR BEES ALIVE IN COLD JANUARY OR FEBRUARY? - Many, many beekeepers look at the front of their colonies on a sunny warm winter day and see bees flying in and out and leave with great confidence that "Everything is fine and my bees are alive and healthy". Quite often (more often than you think), the bees that the beekeeper saw flying were robber bees helping themselves to all the honey left in the colony after the colony bees died maybe of tracheal mite infection or because the queen died in November or December and the colony had lost its morale to live. If you are a real beekeeper, you will find (or make) at least one day each month warm enough (over 50 degrees) for you to REMOVE the inner cover and LOOK in between the

frames for hive condition. Even better, if it is sunny and the temperature is over about 55, remove frame #1 or #2 to make space and then examine the center frames (or where most bees are located) for about 15 seconds each for BROOD). If you find any brood, close it up and look again 3-4 weeks later. If you find any problems that have to be handled, don't delay that action until the weekend because it might be snowing and 10 degrees. Call your employer, explain your problem, and do what has to be done while you have that warm weather. If he is not happy about your request, give him my phone number and I will give him a strong lesson about the importance of YOUR bees to HIS stomach; and he will profit by being a more informed person than his contemporaries.

WHAT IS A "HARD" WINTER FOR BEES? Most beekeepers answer this question with the WRONG answer, because they are anthropomorphic (look in a dictionary) and they just haven't read enough about apis metabolism. Flying is hard work for a bee, burning up large amounts of energy supplied by large amounts of food and done in a short time, so that a bee's total life span in flying weather is only about 6 weeks. However, that same bee can live 15-20 weeks if it doesn't fly and hence it has no need to eat very much either. Going a step further, if the continued cold weather prevents flight, the bees form a tighter cluster to maintain warmth and hence don't move around hardly at all, then they don't require much food, so they don't have to relieve their bowels for long, long periods of time. Can you begin to "get the picture of what is a 'hard' winter compared to an 'easy' winter for a bee"? An absolute ideal "easy" winter for a bee is to turn cold to 30 degrees WITH NO WIND and just stay at 30 degrees for about two months, warm up to flight temperature for a couple of days and all go out for a cleansing flight and then go back to a steady 30 degrees for another couple months. Very few bees would die, the bees would eat very little of their stored honey, and the cluster could warm a large brood area for queen laying. A HARD winter (for bees, not humans) is several months where the temperature goes up and down like a yoyo, where a wind quickly cools a colony so that tight clustering is a problem and then suddenly it warms to flight temperature again. Flying takes energy and suddenly on the way back home, clouds obscure the warmth of the sun and the bee can't fly home and dies on the ground of cold weather. They eat a tremendous amount of food in this on and off hot-cold weather; and all of these things cause a lot of death so that there aren't a lot of bees to maintain a warm brood nest for queen laying.

Bees have survived in plain hives (not packed in insulated boxes) in Canada and Alaska for centuries proving that they can withstand below zero temperatures, and bee research scientists have tested bees in open hives, insulated hives, hives placed in dirt cellars in our colder states and have not made any decision about which hive is better off in the winter.

However, there is universal agreement that the "hardest" winter for bees are those that have greatly fluctuating temperatures with short periods of flying weather followed by cold clustering weather and vice-versa.

40 DAYS BETWEEN EGG LAID AND "IT" COMING A NECTAR COLLECTOR! - Too often beekeepers just don't have their bee population high enough to make a good yield in spite of a strong nectar flow. Why not? The queen lays a worker bee egg, and the adult bee emerges from the brood cell 21 days later. This young bee is genetically programmed to perform hive duties like comb building, receiving and storing nectar and pollen, nursing larvae, being a guard bee, feeding the queen, etc for the first 19 days of its life before it "gains its flight wings" to become a

nectar collector. Hence, 21 days gestation time plus 19 days of hive work total 40 days before that bee embarks out to flora to collect nectar! For example, if a good nectar flow starts on May 1st, the queen must lay the egg to produce a bee to collect nectar on that date must be laid 40 days in advance, or March 21st! Suppose you want to make splits on April 10th (about dandelion time), the egg to produce a collector of that dandelion nectar will have to be laid on March 1st. To have your bees at full strength to collect this early spring nectar yield, you have to "force" queen laying by feeding artificial nectar (1:1 sugar syrup) back in early February, and having early exploding population Carniolans help. Of course, all this was planned in the previous September so that your bees entered winter quarters strong in population and disease free, but that is another subject.

WHAT IS THE SIMILARITY BETWEEN THE QUEEN OF ENGLAND AND A HONEY BEE QUEEN? - For the past 2 centuries, the King or Queen of England are little more than titles, in that they have no governing power over the affairs of the people or the country. All governing power is the hands of the English Parliament, a body of the common people. Although the English people honor their titular Queen treating her as if she had great authority, she has that position by the will of Parliament who make all laws and decisions of the government. Except for the facts the honeybee queen is the mother of all bees of the colony and binds them together as a social unit by her production of queen pheromones, her worker bee daughters make all the decisions concerning the maintenance and survival of the colony. The worker bees "direct" the queen to increase egg laying or diminish egg laying by the amount of food they feed the queen and how many comb cells they prepare and clean for her egg laying. When in the swarming mode, the workers prepare swarm cells, prevent the queen from destroying the developing queens, starve the queen to reduce her weight so she can fly, force her out of the hive door to merge into the settling swarm, and in the event of rain so they cannot depart on the planned day, the workers prevent any contact between their queen and any emerged virgin queens in the colony. And lastly, when the worker bees become dissatisfied with the queen, they select larvae that already exists, start feeding it royal jelly to convert the planned worker bee to a queen bee in its prepared supersedure cell, and finally disperses the old queen. The similarity of the Queen of England and a Honey Bee Queen is that neither govern, and the future of each society is decided by the "common members".

WHAT CAUSES BEE DEATH DURING THE WINTER? - If you say "a harsh cold winter", you will be wrong 95% of the time! The principal causes of winter death are: tracheal mite infestation, other diseases, queen death, weak colony, and starvation particularly in February and March. Although in severe situations, a colony might die of tracheal mite infestation during the summer or fall, such is not the case because the queen's egg laying is replacing infected bees.. This is not so in the winter months as the queen curtails egg laying in late November and commences again in January. During this time, bees that have not been adequately treated for tracheal mite infection become sicker and sicker as the tracheal mites are clogging up the bees air passages ending in strangling to death. Death by tracheal mite usually occurs in January and the hive has plenty of honey but the bees are gone and dead. Most other diseases do not in themselves kill a colony, but make it so weak or sick, that it finally dies from secondary effects. One should not expect a weak population of bees to survive a winter because there just aren't enough bees to form a cluster than can maintain warmth. Starvation usually results by the use of large amounts of stored honey to feed the new larva from the late winter queen laying. There is no designed age for a queen to die (or you also), but if "her number is up" in November or December, the bees cannot raise a new queen so the colony perishes. Not with the purpose of offending you, but hoping that it

helps you, I want to point out that the great majority of winter death is the FAULT OF THE BEEKEEPER in that he did not properly treat for a disease, or he let a weak colony enter the winter rather than combining it with another colony, or he did provide enough winter stores for the bees, or finally, no queen that is almost 2 years old should be expected to make it through the winter.

HOW DO BEES KEEP WARM IN THE WINTER? - Unlike you, they can't change the thermostat, throw another log on the fire, or take refuge in the YMCA; but neither can most of nature's creatures. Dairy cows or horses stand out in the snow or rain standing close together to break the wind and share the warmth of the other critters. Chickens draw closer together on their roosts, and the animals that live in caves or dens move back from the entrance into a corner. This is NATURE'S WAY, and you will only "screw up" their genetic regimen if you try to alter the wintering methods of apis mellifera. Bees do NOT make any attempt to warm most of the hive interior or to distribute body heat AWAY from them. Conversely, they cluster together with the queen and some honey stores in the cluster center. Some interior bees eat honey and microscopically flex their body muscles to develop body heat which is transferred from one bee to another because the bees are clustered tight together on each other. The colder it gets, the more compact (tighter) the cluster becomes. Obviously this system works, because the queen cannot lay eggs nor the bees maintain brood at a temperature less than about 91 degrees; but the queen might be laying eggs in February in a driving snow storm and outdoor temperatures well below freezing.

Far, far more important than you trying to weatherproof and/or insulate the hive structure are three major factors: Provide a windbreak for the hive, particularly from the northwest winds; keep all dampness away from the hive and make sure the hive is tilted forward to let rain water run out; and make sure the hive has good ventilation and particularly an open UPPER ENTRANCE.